

WHAT IS CLAIMED IS:

1. A reflector comprising:

a transparent film

an adhesive layer disposed on one surface of said

5 transparent film;

a groove structure provided on the other surface of said transparent film, said groove structure having a plurality of grooves including optical path changing slopes aligned in a substantially constant direction at an inclination angle in  
10 a range of from 35 to 48 degrees with respect to a plane of said transparent film;

a transparent cover film formed so as to cover an outer surface of said groove structure; and

a light diffusing type reflection layer disposed on an  
15 outer surface of said cover film.

2. A reflector according to claim 1, wherein said optical path changing slopes are constituted by at least two kinds of slopes in which one kind of slopes aligned in a  
20 substantially constant direction serve as a reference while the other kind of slopes are aligned substantially in a direction opposite to said one kind of slopes;

said adhesive layer is covered with a release liner; and

said light diffusing type reflection layer is made of  
25 a metal thin film or dielectric multilayer film provided on

a fine prismatic surface.

3. A reflector according to claim 1, wherein said inclination angle of each of said optical path changing slopes with respect to said film plane is in a range of from 38 to 45 degrees.

4. A reflector according to claim 1, wherein each of said grooves is shaped substantially like an isosceles triangle, or a triangle other than said isosceles triangle, or a tetragon in section.

5. A reflector according to claim 1, wherein said groove structure further includes flat surfaces each of which is inclined at an inclination angle of not larger than 5 degrees with respect to said film plane, and

a projected area, on said film plane, of said flat surfaces is not smaller than 5 times as large as a projected area, on said film plane, of said slopes each having an inclination angle of not smaller than 35 degrees.

6. A reflector according to claim 1, wherein said groove structure is constituted by continuous grooves extended from one end of the film to the other end thereof or by discontinuous grooves each having a length not smaller than

5 times as large as a depth of each of said discontinuous grooves and having optical path changing slopes formed in a direction of the length of said discontinuous grooves.

5 7. A reflector according to claim 1, wherein  
ridgelines of said optical path changing slopes are parallel  
to or inclined within an angle range of  $\pm 30$  degrees with respect  
to one side of said transparent film.

10 8. A reflector according to claim 1, wherein said  
adhesive layer is of a light diffusing type.

15 9. A lighting-external light double mode  
liquid-crystal display device comprising:  
a reflector according to claim 1; and  
a transmission type liquid-crystal panel,  
wherein said reflector is bonded to a back side (opposite  
to a viewing side) of said transmission type liquid-crystal  
panel through said adhesive layer of said reflector.

20 10. A liquid-crystal display device according to claim  
9, further comprising a light source disposed on at least one  
of side surfaces of said transmission type liquid-crystal panel,  
said side surface facing said optical path changing slopes of  
25 said reflector.